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PLANETARY PHENOMENA FOR MAY AND JUNE, 1916.

 BY MALCOLM McNEILL.

PHASES OF THE MOON, PACIFIC TIME.

New Moon.....	May	1st,	9h 29m	P.M.	First Quarter...	June	8th,	3h 59m	P.M.
First Quarter....	"	10th,	12 47	A.M.	Full Moon.....	"	15th,	1 42	P.M.
Full Moon.....	"	17th,	6 11	A.M.	Last Quarter....	"	22d,	5 16	A.M.
Last Quarter....	"	23d,	9 16	P.M.	New Moon.....	"	30th,	2 43	A.M.
New Moon.....	"	31st,	11 37	A.M.					

The Sun reaches the summer solstice on June 21, 10^h 24^m A. M. Pacific time, and then begins to move southward.

Mercury during May is in the best position of the year for evening observation. On May 1st it sets more than an hour and a half after sunset, and this interval increases until near the middle of the month, when it is only a few minutes less than two hours. Greatest east elongation is reached on the morning of May 12th. Its apparent distance from the Sun is then 21° 43', an average distance for a greatest elongation. After passing greatest elongation the planet approaches the Sun, so that during the last week in May it is too near for naked eye view. On June 5th inferior conjunction is reached and the planet becomes a morning star. The distance between the Sun and planet rapidly increases and greatest west elongation is reached on the evening of June 29th. The elongation is of average size, 21° 52'; but the planet is a considerable distance south of the Sun, partly because it is in the southern part of its orbit, and the interval between the rising of the planet and sunrise is but little more than one hour, so that it is in rather poor position for naked eye view. At the beginning of May the planet is about twice as bright as the ordinary first magnitude star, but it grows fainter and by the time it is too near the Sun for observation toward the end of the month it is about as bright as the pole star.

Venus, except for the Moon, is by far the most conspicuous object in the evening sky until near the end of June. On May 1st it does

not set until nearly 11 P. M., not quite four hours after sunset; but having passed its greatest east elongation near the end of April, the Sun and planet are apparently drawing nearer together. On June 1st it remains above the horizon until nearly three hours after sunset. This interval diminishes to less than two hours by the middle of the month, and by the end of the month the two bodies are nearly in conjunction, too near for naked eye view of the planet. On May 27th, halfway between greatest elongation and inferior conjunction, *Venus* reaches its greatest brilliancy, being then bright enough to be seen in full daylight, altho not very easy to detect unless one knows just where to look for it. Its stellar magnitude is then —4.2, that is it is more than one hundred times as bright as the average first magnitude star. Its motion among the stars is eastward until June 11th, about 26° since May 1st, from the eastern border of *Taurus* into *Gemini* being at the latter date a few degrees south of *Castor* and *Pollux*. It then begins to retrograde, move westward, and at the end of the month has gone back about 7° ; but during the turning it has also moved southward so that on June 30th it is over 6° due south of the position it occupied on May 21st. The relative motions of *Venus* and *Saturn* are very interesting, and afford a very good illustration of direct and retrograde planetary motion. *Saturn* during the two months' period moves about 6° direct, that is, eastward. The two planets are twice in conjunction: the first time on the night of May 23-24, when *Venus* passes *Saturn* $3^{\circ} 25'$ north of the latter. The relatively greater eastward motion of *Venus* soon slackens, and after it reaches a position about 4° east of *Saturn* in early June, it begins to approach again, but meanwhile swings a considerable amount to the southward so that when they reach the second conjunction on June 22nd *Venus* is not quite 1° south of *Saturn*, having nearly encircled the latter in the month elapsed since the first conjunction.

Mars is still in good position in the western sky for evening observation altho it has ceased to be a very conspicuous object; however it is still easily identified. On May 1st it is about twice as bright as an average star of the first magnitude, but by the end of June it is about half way between a first and second, that is, twice as bright as the pole star. On May 1st it set shortly before 2 A. M. and at about 11 P. M. on June 30th. During the two months it moves about 27°

eastward and 12° southward from *Cancer* to the eastern part of *Leo*. During the latter half of May it is near the first magnitude star *Regulus*, α *Leonis*, passing that star on May 24th from west to east and about 1° north.

Jupiter is a morning star almost too near the Sun for naked eye view on May 1st as it then rises less than an hour before sunrise; but the interval increases rapidly so that by the end of June it rises shortly after midnight. It is in the eastern part of *Pisces*, moving 11° eastward and 4° northward during the two months.

Saturn is still in fair position in the western sky in the evening, but is gradually drawing near the Sun. On May 1st it remains above the horizon until about 11^h 30^m P. M., but at the end of June it sets a few minutes after 8 P. M., only a little more than a half hour after sunset, and therefore too near for naked eye view. It is in the constellation *Gemini* south and west of *Castor* and *Pollux* and during the two months moves about 7° eastward among the stars. The relative motions of *Saturn* and *Venus* have already been noted.

Uranus rises shortly before 2 A. M. on May 1st and shortly before 10 P. M. on June 30th. It is in the constellation *Capricorn* and moves slowly eastward until May 24th and then begins to retrograde, but the whole motion is about equal to the apparent diameter of the Moon. No bright star is near it, but the third magnitude, δ *Capricorni*, is about 3° east and 1° south of the planet.

Neptune is in the western sky in the evening in the constellation *Cancer*.

(EIGHTY-SIXTH) AWARD OF THE DONOHUE
COMET-MEDAL

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Mr. John E. Mellish, of Cottage Grove, Wisconsin, for the discovery of an unexpected comet on February 10, 1915.

COMMITTEE ON THE COMET-MEDAL:

W. W. CAMPBELL,
R. H. TUCKER,
HEBER D. CURTIS.

(EIGHTY-SEVENTH) AWARD OF THE DONOHUE
COMET-MEDAL

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Mr. John E. Mellish, of Cottage Grove, Wisconsin, for the discovery of an unexpected comet on September 13, 1915.

COMMITTEE ON THE COMET-MEDAL:

W. W. CAMPBELL,
R. H. TUCKER,
HEBER D. CURTIS.

(EIGHTY-EIGHTH) AWARD OF THE DONOHUE
COMET-MEDAL

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Mr. C. J. Taylor, of Cape of Good Hope, South Africa, for the discovery of an unexpected comet on December 2, 1915.

COMMITTEE ON THE COMET-MEDAL:

W. W. CAMPBELL,
R. H. TUCKER,
HEBER D. CURTIS.